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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,807	09/11/2003	Atsuo Omaru	09792909-5671	7066

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EXAMINER	
AUSTIN, MELISSA J	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/660,807	OMARU, ATSUO	
	Examiner	Art Unit	
	Melissa Austin	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *14 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 8-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 8-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

5.00

DETAILED ACTION

1. Claims 1-5, 8-10 are pending in this application after the amendment submitted 14 April 2005.

Information Disclosure Statement

2. An Information Disclosure Statement (IDS) has not been filed as of the mailing of this action.

Specification

3. The use of the trademark MYLAR has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 1 contains the trademark/trade name MYLAR. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope

is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe the electrode substrate, and, accordingly, the identification/description is indefinite. MYLAR is a polyester film; it is suggested that MYLAR be deleted from the claim since polyester, which is already included in the listing of high molecular weight polymers in claim 1, encompasses MYLAR.

6. Claims dependent from claims rejected under 35 USC 112, first and/or second paragraph are also rejected for the reasons stated above.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-4, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. (US 2003/0108795) in view of Hagg et al. (WO 00/57507). Tamura et al. teach a battery with a nonaqueous electrolyte containing an electrolyte solute (in the form of salts: Pg. 3, [0041], [0042]), a positive electrode containing an active material (Pg. 4, [0041], [0043]), and an anode. The anode includes a thin film layer of a metal

that does not alloy with lithium, a thin film layer of metal that does alloy with lithium, a mixed layer composed of these metals between the thin film layers (Pg. 1, [0007]); a thin film of hard carbon on the opposite surface of the metal that alloys with lithium than the metal that does not alloy with lithium (Pg. 3, [0033]); and a thin film interlayer between the thin film of carbon and the metal that alloys with lithium (Pg. 3, [0040]). The thin films may be formed of electrochemical processes such as electroplating, electroless plating, CVD, sputtering, vapor evaporation, and spraying (Pg. 2, [0028]). The use of metals that alloy with lithium for the negative electrode material is known (Pg. 1, [0005]). The metal that alloys with lithium is a metal that forms a solid solution or intermetallic compound with lithium; examples include Sn, Ge, Al, In, Mg, Pb, Zn, Bi, and the like (Pg. 1, [0017]). The metal that does not alloy with lithium (Pg. 2, [0028]), the carbon (pg. 3, [0038]), and the interlayer (Pg. 3, [0040]) are formed as thin films. The active materials for the positive electrode include lithium-containing transition metal oxides, such as $LiCoO_2$, $LiNiO_2$, and $LiMnO_2$. However, Tamura et al. do not disclose an anode substrate that is a high molecular weight polymer. Hagg et al. disclose typical polymeric electrode substrates; exemplary polymers are fluorocarbon polymers, polyamides, polyaramides, polyaryl sulfones, polyaryl sulfides, polycarbonates, polyesters, and polyolefins. Other exemplary polymers are found in *Polymer Handbook* (incorporated by reference into the WIPO reference) and include cellulose triacetate (Pg. VIII/3). These substrate materials possess the lowest electrical resistivities, require a relatively low bonding temperature and short processing time. (Pg. 11, ll. 35- Pg. 12, ll. 31; Pg. 22, ll. 34-36). The polymers of Hagg et al. have specific gravities ranging from

0.9 to around 2.0 g/cc (www.polymerweb.com). Therefore, one of ordinary skill in the art at the time the invention was made would have used such polymers as taught by Hagg et al. as the electrode substrate as taught by Tamura et al. in order to provide the lowest electrical resistivities and require a relatively low bonding temperature and short processing time.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. (US 2003/0108795) in view of Hagg et al. (WO 00/57507) further in view of Kawakami et al. (U.S. Patent No. 6,051,340). Tamura et al. and Hagg et al. together teach the elements of claim 1, but neither reference teaches the use of in a mixture layer containing one or more of a second metal, third metal, fourth metal, and carbonaceous material with a binder. Kawakami et al. teach an anode comprising a metal capable of being alloyed with lithium and a metal incapable of being alloyed with lithium formed as a composite with a binding agent, and the metal capable of being alloyed with lithium is incorporated with a powdery carbon. This anode readily holds the electrolyte solution and has a reduced impedance. It also is free of the occurrence of a crack due to expansion, and the specific surface area may be increased. (Col. 5, ll. 22-Col. 6, ll. 5). Therefore, one of ordinary skill in the art at the time the invention was made would have added the mixture layer as taught by Kawakami et al. into the layered anode as taught by Tamura et al. and Hagg et al. in order to provide an anode that readily holds electrolyte solution, has reduced impedence, does not crack with the alloying of lithium, and has increased specific surface area.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. (US 2003/0108795) in view of Hagg et al. (WO 00/57507). Tamura et al. and Hagg et al together teach the elements of claim 1. In addition, Tamura et al. teaches the preparation of electrodes in which active material is deposited on a substrate, then the substrate is cut into smaller pieces (Examples 1-7). One of ordinary skill in the art would have been familiar with wound cells at the time of invention and would have recognized that the coated electrode substrates and a separator could be formed into a wound assembly if the substrates were not cut after coating. Therefore, one of ordinary skill in the art at the time the invention was made to coil the coated substrates in the longitudinal direction with a separator in-between in order to produce a wound cell.

Response to Arguments

11. Applicant's arguments, see Remarks, filed 14 April 2005, with respect to the objection to the specification have been fully considered and are persuasive. The objection to the specification has been withdrawn.

12. Applicant's arguments, see Remarks, filed 14 April 2005, with respect to the 35 U.S.C. 112 rejection of claims 10, 6, and 7 have been fully considered and are persuasive. The 35 U.S.C. 112 rejection of claims 10, 6, and 7 has been withdrawn.

13. Applicant's arguments with respect to claims 1-5, 8, and 9 have been considered but are moot in view of Applicant's amendment and resulting new ground(s) of rejection.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Austin whose telephone number is (571) 272-1247. The examiner can normally be reached on Monday - Thursday, alt. Friday, 7:15 AM - 4:15 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mja
Melissa Austin
Patent Examiner
Art Unit 1745

PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER